

CLAIMS

1. A rotating assembly in which a rotating member is fixed onto a shaft by inserting the shaft into an inner hole of the rotating member, characterized in that:

a diameter of the inner hole is formed smaller than an outer diameter of an insertion portion of the shaft, and a plurality of grooves extending in the insertion direction are formed on one of the inner hole and an outer circumferential surface of the shaft;

after the diameter of the inner hole is expanded by heating the rotating member, the shaft is inserted into the inner hole and cooled to reduce the diameter of the inner hole again, the other of the inner hole and the outer circumferential surface of the shaft is pressed and raised by the other part and enters the grooves so that both of them are fixed and formed.

2. The rotating assembly according to claim 1, characterized in that the rotating member is a cam piece having a circumferential-shaped outer circumferential surface surrounding the inner hole and a cam profile continuing to this outer circumferential surface and projecting outward, the plurality of grooves are formed in the inner hole, and by inserting the driving shaft into the inner hole, the cam piece is fastened onto the inner hole so as to form a camshaft.

3. The rotating assembly according to claim 2, characterized in that at a portion in the inner hole positioned inward of the location where the circumferential-shaped outer circumferential surface continues to the cam profile, a large-diameter escape portion is formed to prevent contact with the outer circumferential surface of the driving shaft when the cam piece is fastened to the driving shaft.

4. The rotating assembly according to claim 2 or 3, characterized in that a hardness of the inner hole of the cam piece is higher than the hardness of the outer circumferential surface of the driving shaft.

5. A manufacturing method of a rotating assembly in which a rotating member is fixed onto a shaft by inserting the shaft into an inner hole of the rotating member, characterized in that:

a diameter of the inner hole is formed smaller than an outer diameter of an insertion portion of the shaft, a plurality of grooves extending in the insertion direction are formed on one of the inner hole and an outer circumferential surface of the shaft, after the diameter of the inner hole is expanded by heating the rotating member, the shaft is inserted into the inner hole and cooled to reduce the diameter of the inner hole again, the other of the inner hole and the outer circumferential surface of the shaft is pressed and raised by the other part and enters the grooves so that both are fixed.